

GISday



UNIVERSITY OF
ALBERTA

UofA's GIS Day 2019

GIS, Storytelling, and Free Stuff!



What is... ?

GIS

Geographical
Information
System



Dr. Roger Tomlinson



Geography

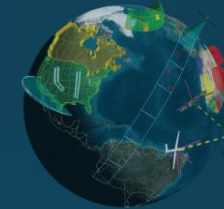
“**Geography** is the study of places and the relationships between people and their environments.

Geographers explore both the physical properties of Earth’s surface and the human societies spread across it. They also examine how human culture interacts with the natural environment and the way locations and places can have an impact on people.

Geography seeks to understand where things are found, why they are there, and how they develop and change over time.”



Geospatial



The collective **data** and associated **technologies** that have a geographic or locational component.

Geospatial data records have locational information tied to them such as geographic data in the form of coordinates, an address, a city, or a postal code.

Geospatial technologies (GIS, remote sensing, GPS, web mapping) acquire, manipulate, store, and visualize geographic information.



Today's Program

- UofA's GIS Resources
 - Labs, software, and other useful stuff
 - ArcGIS Online: UofA's subscription for organizations - get signed up today
- Must-Know Online GIS Resources
 - Community Map of Canada
 - Living Atlas of the World
 - StoryMaps
- ChEHC and ACE Lab online atlases
- Call for Participation
- Links to Learning

UofA's GIS Resources

Research Labs



ALES - Rick Pelletier
<https://www.ualberta.ca/agriculture-life-environment-sciences/about-us/contact-us/facultylecturer-directory/rick-pelletier>



ARTS - Kisha Supernant
<https://sites.ualberta.ca/~supernan/gis-lab.html>



SCIENCES - Arturo Sánchez-Azofeifa
<https://www.ualberta.ca/faculties/centresinstitutes/centre-for-earth-observation-sciences>

Software

<https://ist.ualberta.ca/services/labs-classrooms/lab-details>

Lab Name	Seating	Operating System	Location
Biological Sciences CW-403	24	Windows 10 - VDI	Map
General Services Building 2-17	30	Windows 10 - VDI	Map
General Services Building 8-66	32	Windows 10 - VDI	Map
Rutherford Library South 2-03	30	Windows 10 - VDI	Map
Rutherford Library South 2-05A	16	Windows 10 - VDI	Map

<https://ualberta.onthehub.com/>
 → GIS/Graphics → Students



Useful Stuff

Geospatial Data Services Librarian



- Larry Laliberté
<https://guides.library.ualberta.ca/geospatial-data-maps>



Dec 2019-Jul 2020



The GIS List

<http://www.mailman.srv.ualberta.ca/mailman/listinfo/gis>

Scholarships

- <http://www.urisab.org/sponsorship/>
- <https://scholars.esri.ca/>

http://www.mailman.srv.ualberta.ca/mailman/listinfo/gis



GIS -- Geographical Information Systems education and research for U of A

About GIS

A list for everyone in the University of Alberta community to post and read and any resources related to Geographical Information Systems (GIS)

To see the collection of prior postings to the list, visit the [GIS Archives](#).

Using GIS

To post a message to all the list members, send email to gis@mailman.srv.ualberta.ca

You can subscribe to the list, or change your existing subscription, in the [GIS Archives](#).

Subscribing to GIS

Subscribe to GIS by filling out the following form. You will be sent email messages when you subscribe. This is a private list, which means that the list of members is not available to the public.

Your email address:

Your name (optional):

You may enter a privacy password below. This provides only mild security, but it helps protect your privacy. Do not use a valuable password as it will occur to you in cleartext.

If you choose not to enter a password, one will be automatically generated for you once you've confirmed your subscription. You can always request a mail-back or edit your personal options.

Pick a password:

Reenter password to confirm:

Which language do you prefer to display your messages? English (USA)

Would you like to receive list mail batched in a daily digest? No Yes

GIS Subscribers

(The subscribers list is only available to the list members.)

The GIS Archives

You can get [more information about this list](#).

Match ALL words

Messages are indexed after 7 P.M. so today's messages will not appear in a search result until tomorrow.

Archive	View by:	Downloadable version
2019:	[Thread] [Subject] [Author] [Date]	[Gzip'd Text 70 KB]
2018:	[Thread] [Subject] [Author] [Date]	[Gzip'd Text 63 KB]
2017:	[Thread] [Subject] [Author] [Date]	[Gzip'd Text 71 KB]
2016:	[Thread] [Subject] [Author] [Date]	[Gzip'd Text 78 KB]

2019 Archives by date

• Messages sorted by: [\[thread\]](#) [\[subject\]](#) [\[author\]](#)
• [More info on this list...](#)

Starting: Thu Jan 31 20:51:02 MST 2019
Ending: Fri Nov 8 10:46:48 MST 2019
Messages: 34

- [\[GIS\] ESRI CANADA GIS SCHOLARSHIP - ACCEPTING APPLICATIONS UNTIL FEBRUARY 28th, 2019](#) Rick Pelletier
- [\[GIS\] ESRI Canada Scholarship Application deadline extended to March 12th.](#) Rick Pelletier
- [\[GIS\] Geomatics Services Summer Student | City of Leduc](#) Charlene Nielsen (URISA)
- [\[GIS\] Edmonton Map Society - Winter meeting - Mar 11, 2019](#) Charlene Nielsen
- [\[GIS\] City of Edmonton Ecological Planning Work Experience Student Position](#) Charlene Nielsen
- [\[GIS\] LiveStream of Gillian Rose talk at University of Calgary - Mar 26](#) Charlene Nielsen
- [\[GIS\] Call for Papers: Education track at Esri Canada Calgary UC, May 15](#) Charlene Nielsen
- [\[GIS\] Invitation - 29th Annual Warren E. Kalbach Population Conference, Friday, March 29, 2019](#) Charlene Nielsen
- [\[GIS\] ESRI CANADA GIS SCHOLARSHIP - ACCEPTING APPLICATIONS UNTIL FEBRUARY 28th, 2019](#) Rick Pelletier
- [\[GIS\] DMC Calgary 2019](#) Charlene Nielsen
- [\[GIS\] You're Invited to the Open Science Showcase Event!](#) Darcy Reynard
- [\[GIS\] A Sound Studies Institute Affiliated Lecture on Sound Mapping - Wednesday, April 17, 2019](#) Charlene Nielsen
- [\[GIS\] Last call for participation in the International Cartographic Exhibition](#) Charlene Nielsen
- [\[GIS\] Esri and Applied Geography Conference Student Competition for 2019](#) Charlene Nielsen
- [\[GIS\] #VizRisk Challenge for disaster risk reduction map and data design](#) Charlene Nielsen
- [\[GIS\] Meet the winners of Canada's 2019 Esri Young Scholars Awards](#) Charlene Nielsen
- [\[GIS\] UofA alumna led mapping project wins national award](#) Charlene Nielsen
- [\[GIS\] World Environment Day - June 5th - Main Quad 11am-2pm](#) Charlene Nielsen
- [\[GIS\] PhD/MSc positions at UCalgary](#) Charlene Nielsen
- [\[GIS\] Healthy Neighbourhoods Data Challenge](#) Charlene Nielsen
- [\[GIS\] URISA Alberta Graduate Student Scholarship 2019 - applications due Sept 1st](#) Charlene Nielsen (URISA)
- [\[GIS\] Fwd: GeoAlberta 2019: Calling all Speakers!](#) Charlene Nielsen
- [\[GIS\] UofA's GIS credit courses for Fall 2019/Winter 2020](#) Charlene Nielsen
- [\[GIS\] Esri Canada Calendar contest now open - submit your map today](#) Charlene Nielsen
- [\[GIS\] Shared article \[EJ_104972\] published in Environment International](#) Charlene Nielsen
- [\[GIS\] Government of Alberta - Job Posting - Oil Sands Monitoring \(OSM\) Geospatial Scientist](#) Charlene Nielsen
- [\[GIS\] Share your work with Esri Users, Sept 24, Edmonton](#) Charlene Nielsen
- [\[GIS\] International competition in geomatics and spatial analysis](#) Charlene Nielsen
- [\[GIS\] QGIS and ArcGIS courses December 9-12, 2019 at Olds College](#) Charlene Nielsen (URISA)
- [\[GIS\] Marble-Boyle Undergrad. Achievement Award - Oct. 15](#) Charlene Nielsen
- [\[GIS\] Get Ready for Research Computing Fall Bootcamp](#) Charlene Nielsen
- [\[GIS\] M.A.P.S. Annual Showcase - 2019](#) Charlene Nielsen
- [\[GIS\] UofA's GIS Day 2019 - Wed Nov 13](#) Charlene Nielsen
- [\[GIS\] UofA's GIS Day 2019 - Wed Nov 13th - 10 am to noon - Cameron 2-20A](#) Charlene Nielsen

An aerial photograph of a dense forest, showing various shades of green and brown. A solid blue horizontal banner is superimposed across the center of the image. The text 'ArcGIS' is written in white on this banner, with 'Arc' in a sans-serif font and 'GIS' in a larger, bold, sans-serif font.

ArcGIS

ArcGIS Online UofA's Subscription

- Two types of ArcGIS Online accounts:
 - Free public account for your personal use
 - Subscription for organizations
- Benefits of a subscription account:
 - Esri Access enabled – help and training
 - ArcGIS Pro – your license to activate
 - Keep your content private
 - Share content with specific groups
 - Make your content public
 - Analysis!
- <https://www.arcgis.com/index.html>

A promotional graphic for ArcGIS Online. It features a dark blue background with a network of white dots and lines. At the top center is the ArcGIS logo, a blue hexagon with a white cloud and a white map outline. Below the logo, the text "ArcGIS Online" is written in a large, white, sans-serif font. Underneath this, a horizontal line is followed by a paragraph of white text: "Connect people, locations, and data using interactive maps. Work with smart, data-driven styles and intuitive analysis tools. Share your insights with the world or specific groups." Below the paragraph is a smaller line of white text: "Learn more about ArcGIS Online". At the bottom center is a blue rectangular button with the white text "Sign In".



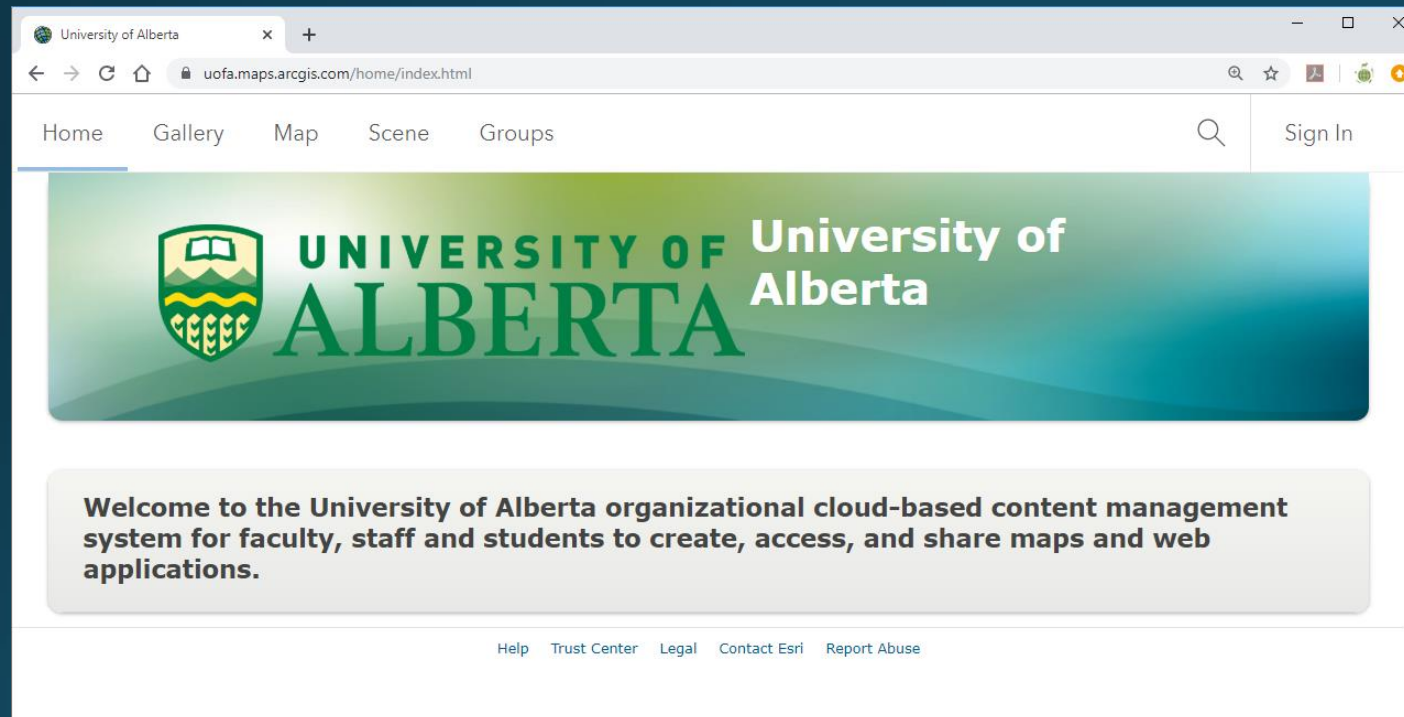
ArcGIS Online

Connect people, locations, and data using interactive maps. Work with smart, data-driven styles and intuitive analysis tools. Share your insights with the world or specific groups.

Learn more about ArcGIS Online

Sign In

ArcGIS Online Get Signed Up Now!



- Do you:
 - Already have an account?
 - Wish to get signed up?
- I will:
 - Reset your password, if you forgot it
 - Edit spreadsheet, sign in with administrator account, and upload new invitees
- In the winter we will hold a workshop in the DSC to learn to use online mapping



ArcGIS Online

Connect people, locations, and data using interactive maps. Work with smart, data-driven styles and intuitive analysis tools. Share your insights with the world or specific groups.

Learn more about ArcGIS Online —

Sign In

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What's New in
ArcGIS Online



Must-Know Online GIS Resources

Community Map of Canada

“...is a basemap of Canada built from authoritative data, collected closest to source and updated daily. Seamlessly created to one common specification and compliant with international standards, it provides unrestricted access to community maps and imagery across the country.”

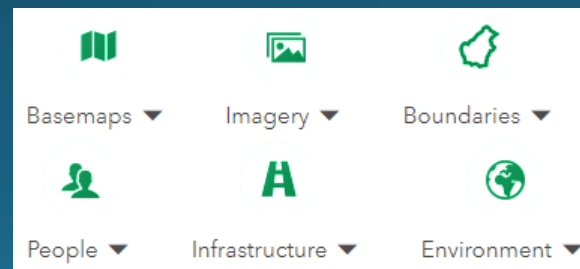
<https://www.arcgis.com/home/item.html?id=98652eb8458a464fa95feb9bd812b29a>



Living Atlas



<https://livingatlas.arcgis.com/en/browse/#d=2>



Story Maps

<https://esri.ca/en/storytelling-with-maps>



esri FedGIS CONFERENCE 2019

Discover the Living Atlas



StoryMaps for Online Atlas #1

ChEHC 

Map Collection

<https://arcg.is/19XyXno>

A Medical Microscope for Children's Environmental Health: The ChEHC Map Collection

Charlene Nielsen,
Osnat Wine, Lesley Brennan,
Irena Buka, Carl Amrhein,
Alvaro Osornio-Vargas



DICTIONARY 

Definition of environmental health in English:

environmental health

NOUN

[mass noun]

- 1 The branch of public health concerned with monitoring or mitigating those factors in the environment that affect human health and disease.

[as modifier] 'air pollution is a huge environmental health issue'

- 1.1 The condition of the environment in a particular region, especially as regards ecological diversity or pollution.

'the analysis focused on 18 seabird species that are indicators of the environmental health of Puget Sound'

Children are at greater risk of environmental contaminants because they are still growing



- Children breathe more air, drink more water, and eat more food per pound of body weight than adults.



- Children are more likely to put their hands in their mouth.



- A child's body may not be able to break down and get rid of harmful contaminants that enter their body.



- Because they are young, children have more time to develop health conditions and diseases from environmental exposures than adults who are exposed later in their life.

Environmental exposures impact all aspects of child development from *in utero* to early childhood

Adverse child health outcome:

- acute respiratory illnesses and infections (bronchitis, sinusitis)
- alterations in the immune system
- asthma
- behavioral disorders (ADHD, autism)
- birth defects (aortic/pulmonary artery/valve)
- childhood cancers
- deficits in lung growth and function
- impaired mental and motor development
- intrauterine growth retardation
- low birth weight
- premature birth
- reduced birth length
- reduced head circumference
- small for gestational age
- stillbirth
- sudden infant death syndrome

Environmental exposures:

- air pollution ←
- water pollution
- hazardous wastes
- radiation
- climate change

Environmental exposures start in the womb, and can have effects throughout life.



Technology & Science

Harmful air pollution 'definitely too high for the public' near city roads, study suggests

Growth in SUVs, pickup truck sales blamed for rising 'non-tailpipe' emissions

[Emily Chung](#) · CBC News · Posted: Oct 30, 2019 8:30 AM ET | Last Updated: October 31



- Greg Evans, director of the Southern Ontario Centre for Atmospheric Aerosol Research at the University of Toronto
- Especially at rush hour, in winter, and poorly maintained diesel trucks (growth in online shopping and delivery)
- Nearly 30 per cent of Canadians live within 250 metres of a major roadway

Monitoring

National Air Pollution Surveillance Program (NAPS)

- Standard, accurate, long-term air quality data, established in 1969
- Continual measurements of 5 select substances:
SO₂, NO₂, O₃, PM and CO
- Monitor and assess the quality of outdoor air in the populated regions of Canada
- Used in the **Air Quality Health Index (AQHI)**

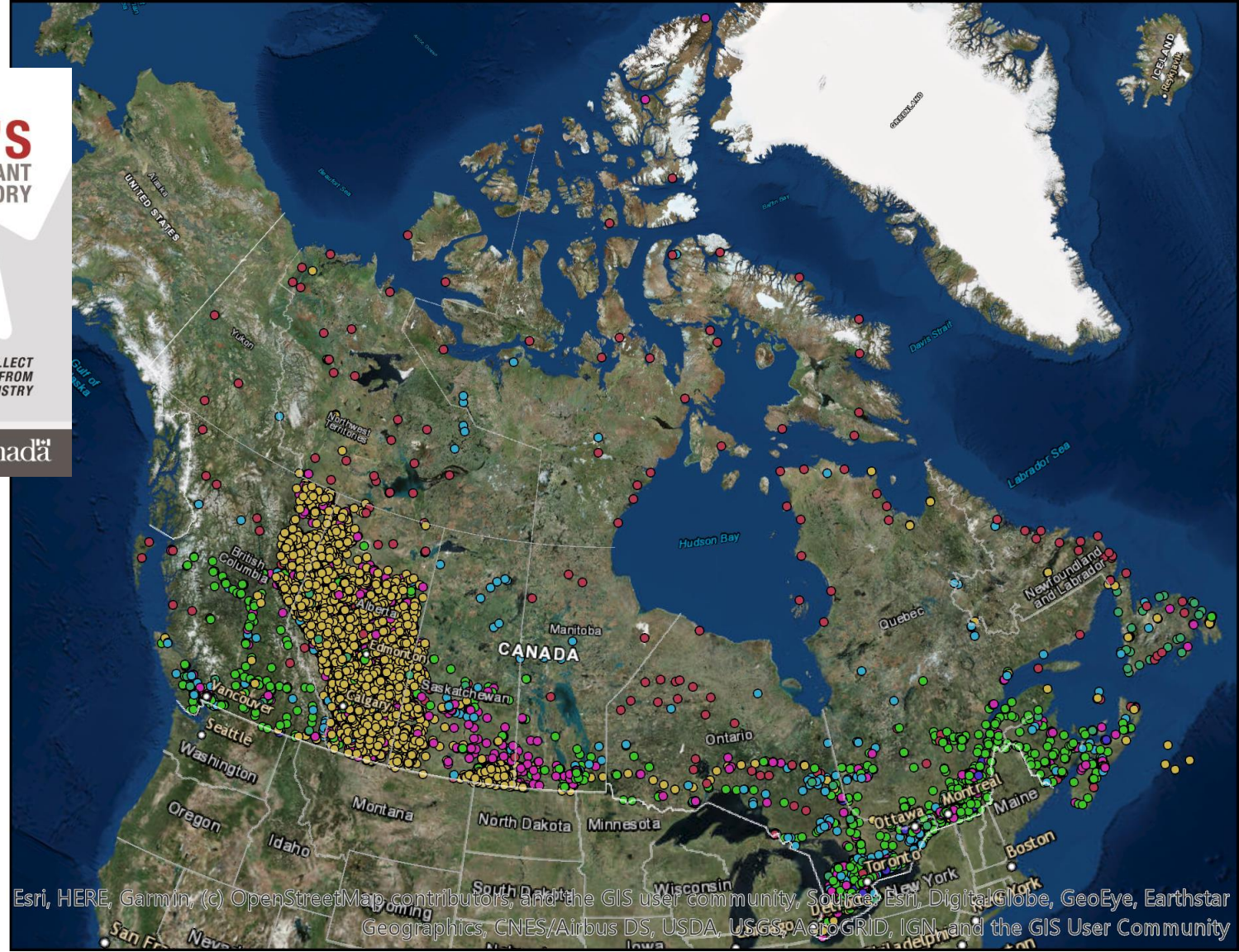
Inventory

National Pollutant Release Inventory (NPRI)

- Canadian Environmental Protection Act (CEPA) in 1999
- Annual estimates of facility-based releases to air, water and land of over 300 select substances
- Most significant point-sources
- A starting point for better understanding how pollutants are entering the Canadian environment



EC.GC.CA/INRP-NPRI



Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community, Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

NPRI 2006-2012
General Sector

- Electricity
- Manufacturing
- Metals
- Mining
- Oil and Gas
- Other
- Waste

Alberta, 2006-2012
136 chemicals emitted to air

47 carcinogens
35 developmental toxicants
20 immunotoxicants

WE ALL HAVE A PART TO PLAY IN PROTECTING CHILDREN FROM DIRTY AIR

Air pollution can be fought on many fronts



HEALTH PROFESSIONALS ARE UNIQUELY PLACED TO TAKE ACTION ON AIR POLLUTION



Be informed



Recognize exposure and related health conditions



Prescribe solutions, and educate families, communities, colleagues and students



Advocate solutions to other sectors, policy- and decision-makers



Research, publish and disseminate knowledge



The broader health sector must become more engaged

CLEAN AIR FOR CHILDREN'S HEALTH

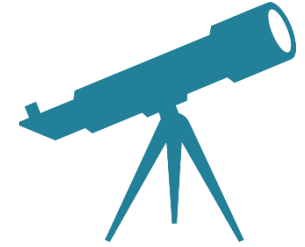
[#AirPollution](#)



World Health Organization



Microscope



Telescope

Macroscopic

Geographical Information Systems (GIS)

Elements



see smaller particles and cells

Extraterrestrial

see farther away into space

Children's Environmental Health Clinic (ChEHC)

A World Health Organization (WHO) Collaborating
Centre in Children's Environmental Health

- Unique program addressing the impacts on children's health from environmental exposures:
 Chemical, Biological, Physical, and Social
- Three branches:
 Clinical Services, Education, and Research
- Here in Edmonton
- We have created an **online atlas** of air pollution for their use

ChEHC 

Map Collection

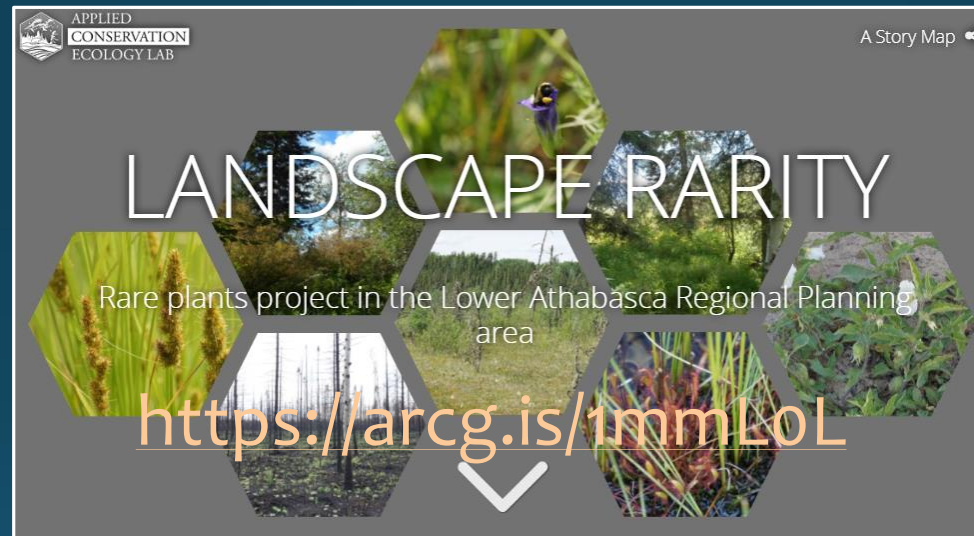
<https://arcg.is/19XyXn0>

Acknowledgments

- DoMiNO Project - CIHR/NSERC CHRP 2013-2018
- ChEHC
- NPRI
- City of Edmonton Open Data
- Statistics Canada Road Network File
- Esri's ArcGIS StoryMaps



StoryMaps for Online Atlas #2



The background features a series of overlapping, concentric circles and lines in various shades of gray, creating a dynamic, layered effect. The lines are both solid and dashed, and the circles vary in size and opacity, giving the impression of depth and movement.

Landscape Rarity

Jacqueline Dennett, Charlene Nielsen, Scott Nielsen

www.ace-lab.org



APPLIED
CONSERVATION
ECOLOGY LAB

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[Research](#)

[Publications](#)

[Blog](#)

[Conservation Atlas](#)



University of Alberta

Applied Conservation Ecology Lab



Sketches Here and There

A Conservation Blog from the University of Alberta

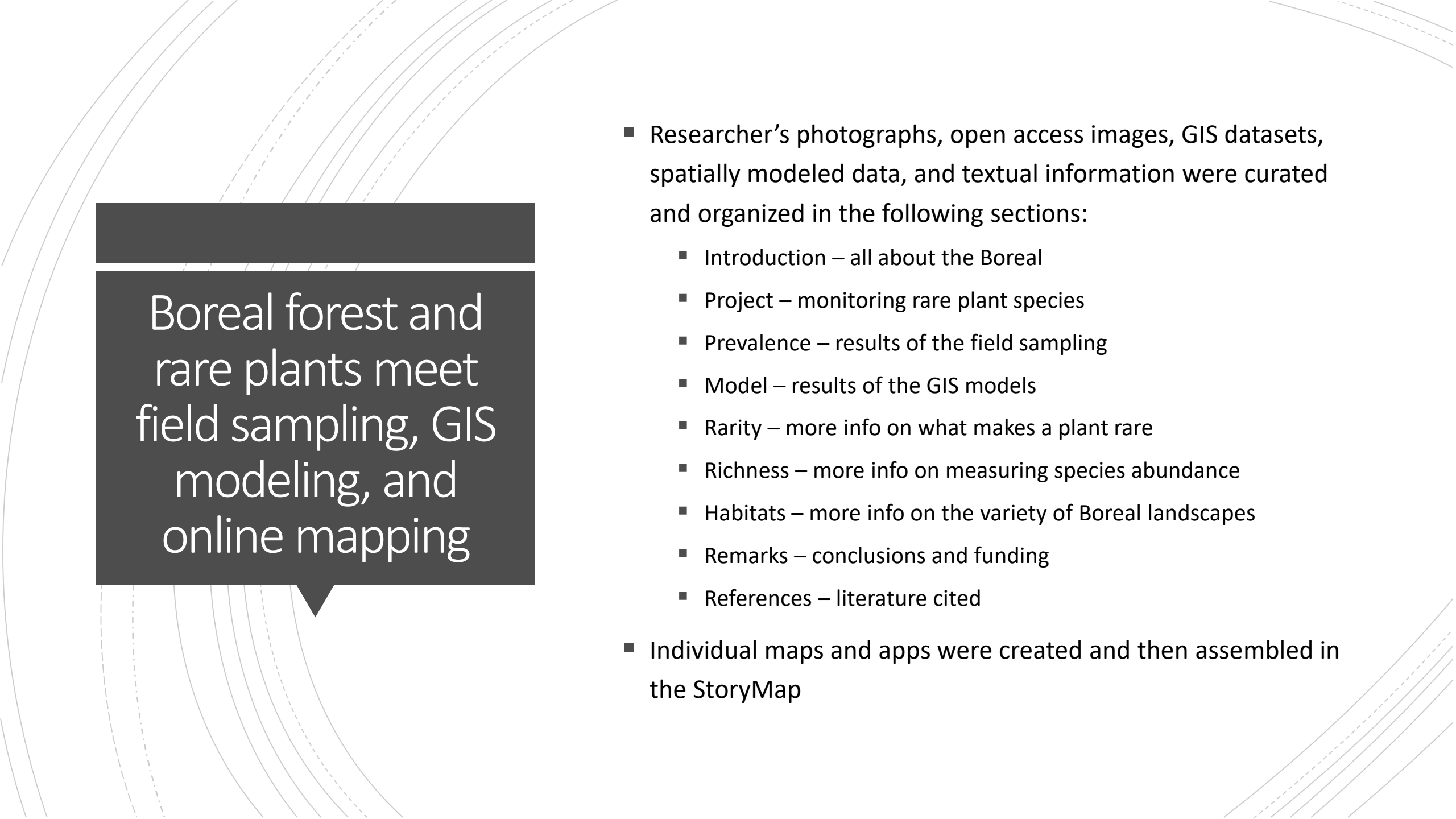
Mapping landscape rarity in Alberta's boreal plants

Relative to other systems, the boreal forest is species poor with low rates of endemism. However, many rare and uncommon species occur in northeastern Alberta, and their conservation is dependent on understanding where these plants are likely to be on the landscape. From 2011 to 2015, Dr. Nielsen, in collaboration with the Alberta Biodiversity Monitoring Institute, designed and oversaw a terrestrial vascular plant monitoring program designed to target rare species.

Rare species, as you may expect, are inherently difficult to survey. Knowledge of occurrences, species ecology, and population dynamics are often lacking, particularly in areas like the boreal where survey effort tends to be low due to difficult ground and poor accessibility. Dr. Nielsen used an iterative, model-based approach to sampling, where landscape factors such as terrain and soil pH were used to predict areas that were most, and least, likely to contain rare species. Over four years, we sampled 602 unique plots and found 42 populations of nine rare species. Uncommon species (those ranked at S3) were found at nearly 100% of plots, clearly demonstrating the advantages of model-directed sampling.

The data produced by this project are publicly available and have been used in multiple manuscripts from the ACE Lab and colleagues to date. To read more about the boreal forest, rare plants, and the details of this extensive sampling effort, check out our new, interactive StoryMap, "Landscape Rarity"!

<https://uofa.maps.arcgis.com/apps/Cascade/index.html?appid=cf214263b9f447c0abf71b665cc79904>



Boreal forest and
rare plants meet
field sampling, GIS
modeling, and
online mapping

- Researcher's photographs, open access images, GIS datasets, spatially modeled data, and textual information were curated and organized in the following sections:
 - Introduction – all about the Boreal
 - Project – monitoring rare plant species
 - Prevalence – results of the field sampling
 - Model – results of the GIS models
 - Rarity – more info on what makes a plant rare
 - Richness – more info on measuring species abundance
 - Habitats – more info on the variety of Boreal landscapes
 - Remarks – conclusions and funding
 - References – literature cited
- Individual maps and apps were created and then assembled in the StoryMap

<https://arcg.is/1mmL0L>



A Story Map

LANDSCAPE RARITY

Rare plants project in the Lower Athabasca Regional Planning area



2019 Esri User Conference

ArcGIS StoryMaps



Call for Participation

- Help create a new GIS website as a StoryMap
 - UofA's online maps
 - UofA's research publications that used GIS
- Email ccn@ualberta.ca – use the subject “UofA GIS StoryMap” – with web links and descriptive content about any online maps or publications by the UofA community
 - Campus maps
 - Google Maps or other online mapping application
 - Class projects
 - Atlases (e.g. ChEHC and ACE Lab)
 - Journal articles
- Requirements:
 - Maps: NO WEB LINKS TO PDFs OR STATIC IMAGES - MUST BE INTERACTIVE
 - Publications: MUST BE PUBLISHED AND HAVE A DOI WEB LINK
- Due by **Dec 20, 2019**
- In the winter we will hold a small workshop in the DSC to assemble the StoryMap





<https://sites.ualberta.ca/~gis/>

*If they are public then
we can link to them*





<https://sites.ualberta.ca/~ccn/>

Links to Learning





- ArcGIS Online

-  <https://www.esri.com/en-us/arcgis/products/arcgis-online/resources>
-  <https://learn.arcgis.com/en/projects/get-started-with-arcgis-online/>
-  www.esri.com/training/Bookmark/P3D2Z6MDF
-  <https://www.esri.com/arcgis-blog/arcgis-online/>




- StoryMaps

-  <https://www.esri.com/en-us/arcgis/products/arcgis-storymaps/overview>
-  <https://learn.arcgis.com/en/projects/get-started-with-story-maps/>
-  www.esri.com/training/Bookmark/PKUUZRMDF
-  <https://www.esri.com/arcgis-blog/story-maps/>

- Living Atlas

-  <https://livingatlas.arcgis.com/en/>
-  <https://learn.arcgis.com/en/paths/using-living-atlas/>
-  www.esri.com/training/Bookmark/FK68Y6MDF
-  <https://www.esri.com/arcgis-blog/arcgis-living-atlas/>

- Community Map of Canada

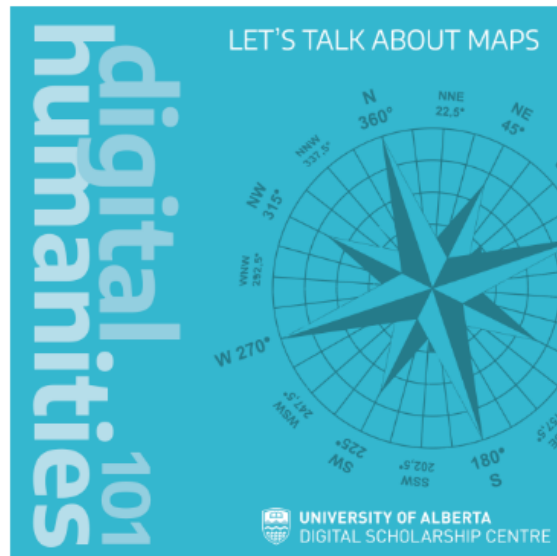
-  <https://esri.ca/en/programs/the-community-map-of-canada>
-  <https://exchange.maps.arcgis.com/home/index.html>
-  <https://esri.ca/en/events/webinars/power-your-basemap-with-the-community-map-of-canada>

- The ArcGIS Book

-  <https://learn.arcgis.com/en/arcgis-book/>

<https://ualberta.libcal.com/event/3526464?hs=a>

[University of Alberta Libraries](#) » [UAL Calendars/Bookings](#) » [Digital Scholarship Centre Workshops](#) » [Digital Scholarship 101 - Let's Talk About Maps](#)



Digital Scholarship 101 - Let's Talk About Maps



An introduction to mapping, map conventions, and Q-GIS (a free open source GIS software). The workshop will include discussion, and hands-on activities. Participants are encouraged to bring their own laptops and to have downloaded and installed Q-GIS (version 3.4 is the recommended long-term release). No prior knowledge of GIS is needed.

This is part of a four week Digital Scholarship series of introductory workshops hosted by the Digital Scholarship Centre. Students, faculty, and staff are all welcome to attend. Participants are encouraged to attend multiple workshops in this series.

Instructor: Kate Cawthorn

Date: Thursday, November 21, 2019
Time: 4:00pm - 6:00pm
Location: 2-20A
Campus: Digital Scholarship Centre

[Begin Registration](#)



Free Stuff!

WINNERS

Personal-Use ArcGIS License:

1. Aiyu Huang
2. Michaela Kleinsasser
3. Radha Adhikari
4. Shannon Marvin
5. Morgan Wilson

Thanks to the GIS Day Team

ArcGIS Pro Book: Jared Geiger

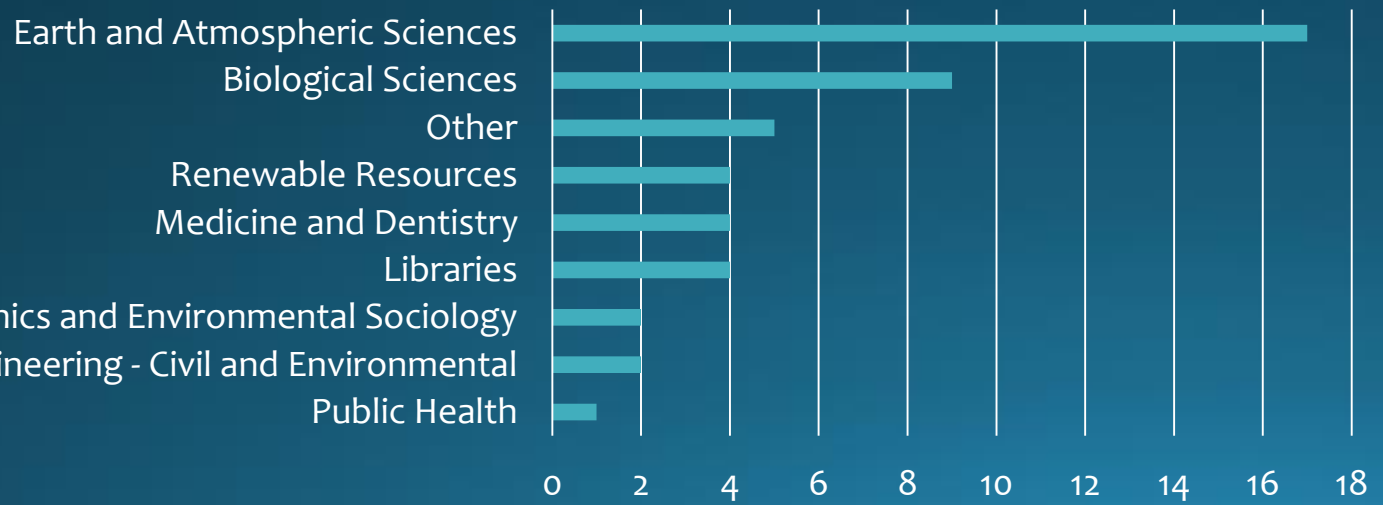
Thanks to UAlberta North



<https://wheelofnames.com>

GISc day

UNIVERSITY OF ALBERTA



Wed Nov 13, 2019